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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/559,403	04/26/2000	Yong Beom Kim	0214-0166P-SP	1204

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EXAMINER

NGUYEN, HOAN C

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/559,403	Applicant(s) KIM, YONG BEOM	
	Examiner HOAN C. NGUYEN	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 23-27 is/are pending in the application.
- 4a) Of the above claim(s) 11-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 23-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to Amended claims 1, 7 and 23 have been considered but are moot in view of the new ground(s) of rejection. Therefore, this is Final action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-10 and 23-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "substantially" in claims 1, 7 and 23 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The "reflecting film overlapping an adjacent gate line substantially" needs to define how much overlap considering to be substantial.

Claims 2-6, 8-10, 24-27 are rejected since they depend on the infinitive claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Kubo et al. (US6295109B1):.

In regard to claim 7, Kubo et al. teach (Figs. 21-22) a transmission-reflection type liquid crystal display device comprising

- a plurality of gate lines 53 and data lines 59a defining a plurality of pixels;
- a transistor in each pixel,
- a gate (gate electrode 52) of which is connected to a gate line and
- a second terminal (source electrode 59b) of which is connected to a data line;
- a reflecting film 61 formed in each pixel and connected to a third terminal (drain electrode 59c of the transistor in each pixel, an outer edge at a side of said reflecting film overlapping one of said gate lines substantially, while an outer edge at an opposing side of said reflecting film does not overlap an inner edge of an adjacent gate line,

wherein

- a light-transmitting region (region T) through which light may pass is disposed between one of said gate lines and said outer edge of said reflecting film, which does not overlap an inner edge of said adjacent gate line.
- light-transmitting region (region T) exists between a data line adjacent to the data line connected to the second terminal of the transistor and the reflecting film in each pixel according to claim 8.
- the reflecting film overlaps (not entirely) the data line connected to the second terminal of the transistor in each pixel as Fig. 8A shown according to claim 9.
- the reflecting film overlaps (not entirely) a gate line adjacent to the gate line connected to the gate of the transistor in each pixel as Fig. 8A shown according to claim 10.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-6 and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US6295109B1) in view of Moriyama et al. (US4017156).

In regard to claims 1 and 23, Kubo et al. teach (Figs. 2-3 and 21) a transmission - reflection type liquid crystal display device comprising:

- a first transparent substrate 1;

- a second transparent substrate-2,
- a liquid crystal layer 5 between the first transparent substrate and the second transparent substrate;
- a linear polarizer 9 on the second transparent substrate;
- a circular polarizer ($\lambda/4$ wave plate 7) on an outer side of the first transparent substrate 1;
- a reflecting film (reflective electrode region 3R) on an inner side of the first transparent substrate adjacent to the liquid crystal layer, the reflecting film defining a light-transmitting region (transmissive electrode region 8T), wherein, as Fig. 21 shown, the light transmitting region disposed between an inner edge of a gate line and a side of outer edge periphery of the reflection film 61 in each pixel, an opposing side of said of reflecting film overlapping an adjacent gate line substantially.
- a $\lambda/4$ phase shift plate ($\lambda/4$ wave plate 10) between the linear polarizer 9 and the liquid crystal layer according to claim 2.
- a transparent common electrode (transmissive electrode 4) between the linear polarizer 6 and the liquid crystal layer according to claim 6.

In regard to claim 3, Kubo et al. teach (Fig. 2) a transmission-reflection type liquid crystal display device, wherein when a voltage is not impressed on the liquid crystal layer, the liquid crystal layer imparts or grants a phase shift of $\lambda/4$ to light transmitted

through the liquid crystal layer since the retardation of liquid crystal 5 is zero when no voltage is applied (col. 10, lines 11-13).

In regard to claim 5, Kubo et al. teach (Figs. 2-3) a transmission-reflection type liquid crystal display device further comprising a color filter on the reflective and transmissive electrode regions (col. 25 lines 55-58), thereby between the linear polarizer and the liquid crystal layer.

However, Kobo et al. fails to disclose

- a transmission-reflection type liquid crystal display device, wherein the cholesteric liquid crystal polarizer includes a right handed helical cholesteric liquid crystal having a range of pitch values p of λ/n for electro-optical display images, where n is an average index of refraction of cholesteric liquid crystal and λ is wavelength. Since the display device is conventionally worked or performed with the visible light, which has wavelength of $\lambda=380\text{nm}-800\text{nm}$.

Moriyama et al. teach (col. 3 lines 1-14) a transmission-reflection type liquid crystal display device, wherein the circular polarizer (1/4 spectrum plate 3) includes a right handed helical cholesteric liquid crystal having a range of pitch values p of λ/n for electro-optical display images, where n is an average index of refraction of cholesteric liquid crystal and λ is wavelength. Since the display device is conventionally worked or

performed with the visible light, which has wavelength of $\lambda=380\text{nm}-800\text{nm}$ for clear and bright color having a high purity of the wavelength, therefore, improving visual effect.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a transmission-reflection type liquid crystal display device as Kubo et al. disclosed with (a) the circular polarizer includes a right handed helical cholesteric liquid crystal having a range of pitch values p of λ/n for electro-optical display images, where n is an average index of refraction of cholesteric liquid crystal and $\lambda=380-800\text{nm}$ for clear and bright color having a high purity of the wavelength, therefore, improving visual effect.

Response to Arguments

Applicant's arguments filed on 12/15/2003 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

Kubo, Moriyama and Mitsui fail to teach reflecting film overlapping a gate line substantially (page 9 lines 10-12). The slight overlap in these references is not substantial enough to form a storage capacitance.

Examiner's responses to Applicants' ONLY arguments are follows:

As a 112 rejection above, a term "substantially" is not well defined. Claims 1, 7 and 23 do not cite the substantial overlap to form a storage capacitance that is irrelevant.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER